REMARKS/ARGUMENTS

This case has been carefully reviewed and analyzed in view of the Official Action dated 4 January 2005. Responsive to the objections and rejections made by the Examiner in the Official Action, Claims 1, 5, 8, 12, 14 and 17 have been amended and are now clearer in their respective recitations. Additionally, Claims 4, 18 and 22 have been cancelled and Claims 23 and 24 have been appended for prosecution. Claims 1, 2, 5, 6, 8-12, 14, 16, 17, 19-21, 23 and 24 will be pending in this Application upon entry of this Amendment.

In the Official Action, the Examiner rejected Claim 14 under 35 U.S.C. § 102(e) as being anticipated by Tinker, et al. (U.S. Patent #6,456,229; hereinafter Tinker). The Examiner also rejected Claims 1, 2, 4-6, 8-13, 16, 17, 19 and 20 under 35 U.S.C. § 103(a) as being unpatentable over Adams, et al. (U.S. Patent #6,380,978; hereinafter Adams). In setting forth the 35 U.S.C. § 103(a) rejections, the Examiner acknowledges that Adams fails to disclose the use of look-up tables recited in the Claims of the subject Patent Application.

Regarding Claims 18, 21 and 22, as previously presented, the Examiner merely objected to those Claims for being dependent upon a rejected base claim, but indicated that those Claims would be allowable if rewritten in independent form to include all of the limitations of the base and any intervening claims. Accordingly, Claims 1 and 12 are each amended to incorporate the subject matter of Claims 18 and 22, respectively. Claim 1 has been further amended to

incorporate the subject matter of Claim 4, as previously presented, which is a claim intervening Claims 1 and 18. The dependency of Claim 5 has likewise been amended such that it now depends from Claim 1. It is believed that Claims 1, 2, 5, 6, 8, 10-12, 16-21 are in allowable form if, for no other reason, than reciting the allowable subject matter, either by direct recitation or by inherency from its dependence on an allowable base claim, such allowance being indicated by the Examiner.

Among other things, Applicants' systems and methods for deinterlacing a video signal for display on a progressive display device generates a look-up table during an initialization routine executed prior to processing any of the video frames for display. As independent Claims 1, 8, 12, 23 and 24 now clearly recite, the invention of the subject Patent Application has among its features means for "generating a look-up table" having "entered therein one of a plurality of processing types associated with a corresponding one of said plurality of frames". By way of this association, "a processing algorithm [is executed] on said series of fields" in accordance with "said indication of said processing type entry". The process of building the look-up table is performed prior to the actual video presentation. Thus, video flow may proceed in real time, even on generic computing platforms not configured with specialized hardware to perform the video signal processing.

The full combination of these and other features now more clearly recited by Applicants' pending Claims is nowhere disclosed by Adams or other references cited by the Examiner. Indeed, the lack of disclosure as to the use of look-up tables is acknowledged by the Examiner in the Official Action. The Examiner has stated that look-up tables are well-known and modification of Adams thereby is motivated by the reference. Whereas, Applicants agree with the Examiner that look-up tables are well known, it is respectfully submitted that Applicants' implementation of look-up tables for the purposes of associating a field data processing type to one or more frames of a video sequence is novel and non-obvious in view of Adams or any other reference cited by the Examiner. Moreover, it is submitted, respectfully, that the extension of Adams' teachings to support the Examiner's conclusions may reflect a misinterpretation thereof.

Contrary to the Examiner's assertion that "it is obvious from Figs. 4-6 that Adams uses algorithms or software/computer programs stored in the SDRAM, controlled by the SDRAM controller, and the programs are generated as needed to control the various detection processes in de-interlacing process in the image enhancement engine", Adams, at column 8, lines 22-52, unambiguously prescribes storage of the system software on _read-only_ memory. This clearly precludes alteration of stored software on an "as needed" basis. _Arguendo_, even if the system software were stored in SDRAM, nowhere is it disclosed that "programs are generated as needed" for controlling various detection processes or for any

other reason. Dynamic generation of system level software is not a conventional feature of signal processing systems, and if such were intended to be realized by Adams, or by any system for which Patent protection is sought, proper disclosure in accordance with 35 U.S.C. § 112 would be required. It is submitted, respectfully, that summarily dismissing the claimed invention on the grounds of obviousness based on such broad extrapolation from the Figures of the reference is unfounded.

In the Official Action, the Examiner argued that "Adams discloses detecting current, last and next fields in processing *either* field difference processing *or* frequency detection (Fig. 7)" (emphases added). However, it is clear from the Specification of Adams at column 11, lines 7-26, that the processing involves no such selection between field difference processing and frequency detection. In Adams, both field difference processing and frequency detection is necessarily performed on all frames by virtue of pipelining, i.e., as time advances, a "next" field becomes the "current" field; the "current" field becomes the "last" field, and so on. Thus, every frame has performed thereon both field difference processing and frequency detection.

In the Examiner's conclusion that it would have been obvious to modify Adams by providing well-known look-up tables, the Examiner alleges that such modification is motivated to "generat[e] the various detections that deinterlacer stages perform before processing the frames (or video signal) so that the system

would have an organized and efficient process of detecting the type of processing

that is needed to be performed to each frame or field". Clearly, though, at column

10, lines 51-59, Adams specifically teaches to the contrary. It requires the

processing to be done with advance knowledge of only a single frame and, further,

that advance knowledge of the arrival of incoming fields is not possible. Thus, not

only does Adams _teach away_ from _a priori_ processing of video frames, but

modifying Adams to do so, as suggested by the Examiner, would be not only

superfluous, but would most assuredly impair performance. Such preprocessing

would unduly consume extraneous time to evaluate the frames of the video

sequence, which would then be exacerbated by the repetition inherent in the

peculiar architecture of Adams.

Independent Claims 1, 8, 12, 23 and 24 each include a limitation of

"generating a look-up table from substantially all of said plurality of video frames

prior to processing any one of said plurality of video frames for display", a feature

which is not disclosed by Adams or any other reference cited by the Examiner, for

the purposes of associating a frame processing type to a frame of a video

sequence. It is respectfully submitted that, given that Adams teaches away from

such practice, the independent Claims 1, 8, 12, 23 and 24, as now presented, are

therefore neither anticipated nor made obvious by Adams, either alone or in

combination with references cited or with previously known applications of look-

up tables in the art. As such, it is now believed that the independent Claims so

limited are allowable over the references cited. It is further believed that the dependent Claims based on independent Claims 1, 8 and 12 are allowable for *at least* the same reasons for which the base Claims are allowable.

In the rejection of Claim 8, the Examiner correctly noted that Adams does not disclose "means for a user selection of processing type for said each video frame, said user selection overriding said processing type entry thereof" and then referred to the rejection of Claim 1 in justifying the rejection. However, the rejection of Claim 1 does not describe how such means for a user selection of processing type is made obvious by Adams. The same is true for the rejection of dependent Claim 16. It is respectfully submitted that Adams does not show a means for user selection of processing type, nor does the reference provide motivation to do so. Whereas, it is believed that Claims 8 and 16, either by direct recitation or by inherency from dependence on a base Claim believed to be allowable by virtue of the limitation of the look-up table, it is respectfully requested that clarification be made regarding the conclusion of obviousness in any subsequent Action in this case.

As newly amended Claim 14 now more clearly recites, Applicants' method of processing a video signal includes among its features a determination of which of the component fields of a video image frame is "a first component field, where said first component field is associated with a display time preceding that of a second component field". The method then "select[s] one of *either* said first
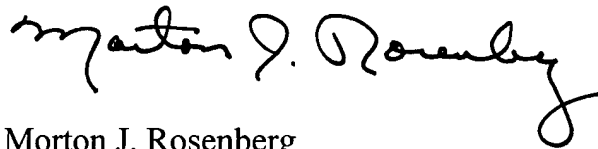
component field <u>or</u> said component field" (emphases added) for processing into a filtered video frame. The first pixel line of the filtered video frame is set "respectively to pixel values of a first one of said plurality of pixel lines of said component field selected in step (c)". Then, if the component field selected in step (c) is that of the later component field, i.e., the second component field, the method sets "pixel values of a second pixel line of said filtered video frame respectively to pixel values of said first one of said plurality of pixel lines of said component field selected in step (c)". Pixel lines having pixel values equal to an average of adjacent pairs of pixel lines are generated and inserted between corresponding adjacent pairs of pixel lines of the filtered video frame "except said first pixel line and except said second pixel line if said selected component field is said second component field".

The combination of these features now more clearly recited by Applicants' newly-amended independent Claim 14 is nowhere disclosed by Tinker, or any of the other references cited by the Examiner. Note that Fig. 5 does not show a first pixel line of a filtered video frame and a second pixel line of a filtered video frame set to "pixel values of said first one of said plurality of pixel lines of said component field selected in step (c)" as was suggested by the Examiner. This is true not only because no determination is made in Tinker as to which is a first, earlier component field and which is a second, later component field in a sequence, but primarily because Fig. 5 shows two separate pixel lines, namely line

a and line b of a component field B, and not identical pixel lines of a filtered video frame, as is suggested by the Examiner. Moreover, the interlaced image fields A and B of Tinker are both used in the final filtered frame, as is shown in Fig. 6A, Fig. 6B and Fig. 7. Thus, no single field, i.e., "either said first component field or said second component field", is selected for subsequent processing into a filtered frame. Thus, as Tinker fails to disclose each and every method step as recited in Claim 14, as now amended, the reference cannot anticipate the invention so claimed. Moreover, as Tinker *teaches away* from the invention as recited by amended Claim 14, in that both component fields are required for processing to a filtered non-interlaced video frame, the reference cannot make obvious the invention so claimed, either.

In view of the foregoing amendments and remarks, Applicants believe that the subject Patent Application is in condition for allowance and such action is respectfully requested.

Respectfully submitted,
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